

REMARKS

Claims 1, 3, 4, 7, 9, 10, 13-15, and 20-24 were pending in this application and claims 7, 9, 10, and 23-24 were withdrawn from consideration pursuant to an Election of Species Requirement. Claims 1, 3, 4, 13-15, and 20-22 were rejected by the Examiner. Claims 1, 13, 14, and 20 have been amended, and new claims 25-30 have been added. Claims 1, 3, 4, 7, 9, 10, 13-15, and 20-30 are currently pending. Applicants reserve the right to pursue the original claims and other claims in this application and in other applications.

Claims 1, 3, 4, 20 and 22 stand rejected as being anticipated by Nakamura et al., US Patent No. 6,507,365 (hereinafter "Nakamura"). Applicant submits that amended claims 1 and 20 are not anticipated by Nakamura. FIG. 16 of Nakamura relied by the examiner does not disclose an active pixel sensor comprising a P-well wherein a frame shutter is fabricated within the P-well, and the photoreceptor is fabricated outside the P-well, as claimed in claims 1 and 20 (*see also* FIGS. 4-5 of the present application). Applicants respectfully submit that for at least the reasons set forth above claim 1 (and its dependent claims 3-4), and claim 20 (and its dependent claim 22) are allowable over Nakamura.

Claims 13-15 and 21 stand rejected under 35 U.S.C. § 103(a) as being obvious over Nakamura in view of Yang et al., "A Snap-Shot CMOS Active Pixel Imager for Low-Noise, High-Speed Imaging," (hereinafter "Yang"). Applicant respectfully traverses as set forth below.

There is no suggestion or motivation to combine the teachings of Yang with Nakamura. Contrary to the argument at paragraph 6 of the Office Action, Yang fails to teach anything about an active-pixel sensor comprising a pinned photodiode and frame shutter. Yang is directed to the improvement of snap shot mode of operation, not frame shutter mode. While Yang makes a cursory statement that "snap-shot mode of operation is also possible with pinned photodiode pixels," Yang expressly distinguishes

between “snap-shot mode” of operation and shutter mode. (See Yang at p. 2.7.3 – 2.7.4). In fact, Yang teaches away from frame-shutter operation and states that “compared to imager operation in ‘rolling shutter’ mode, snap-shot mode of imaging has eliminated row-wise distortion.” (See Yang at 2.7.4). Applicants respectfully submit that for at least the reasons set forth above claims 13-15 and 21 are allowable over Nakamura in view of Yang.


Moreover, there is no teaching in either reference of how the combination alluded to at paragraph 6 of the Office Action would be made. Additionally, there is no teaching in either Nakamura or Yang of an active pixel sensor wherein a photoreceptor (as recited in application claim 21) or photoreceptor comprising a pinned photodiode (as recited in application claim 14) is fabricated within the pixel sensor substrate and outside the P-well. The above are additional reasons why claims 14, 15 (which depends from claim 14) and 21 are allowable over Nakamura in view of Yang.

New claims 25-30 have been added and are directed to further embodiments of the invention in novel combinations.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

By 
Stephen A. Soffen

Registration No.: 31,063
DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP
2101 L Street NW
Washington, DC 20037-1526
(202) 785-9700
Attorneys for Applicants